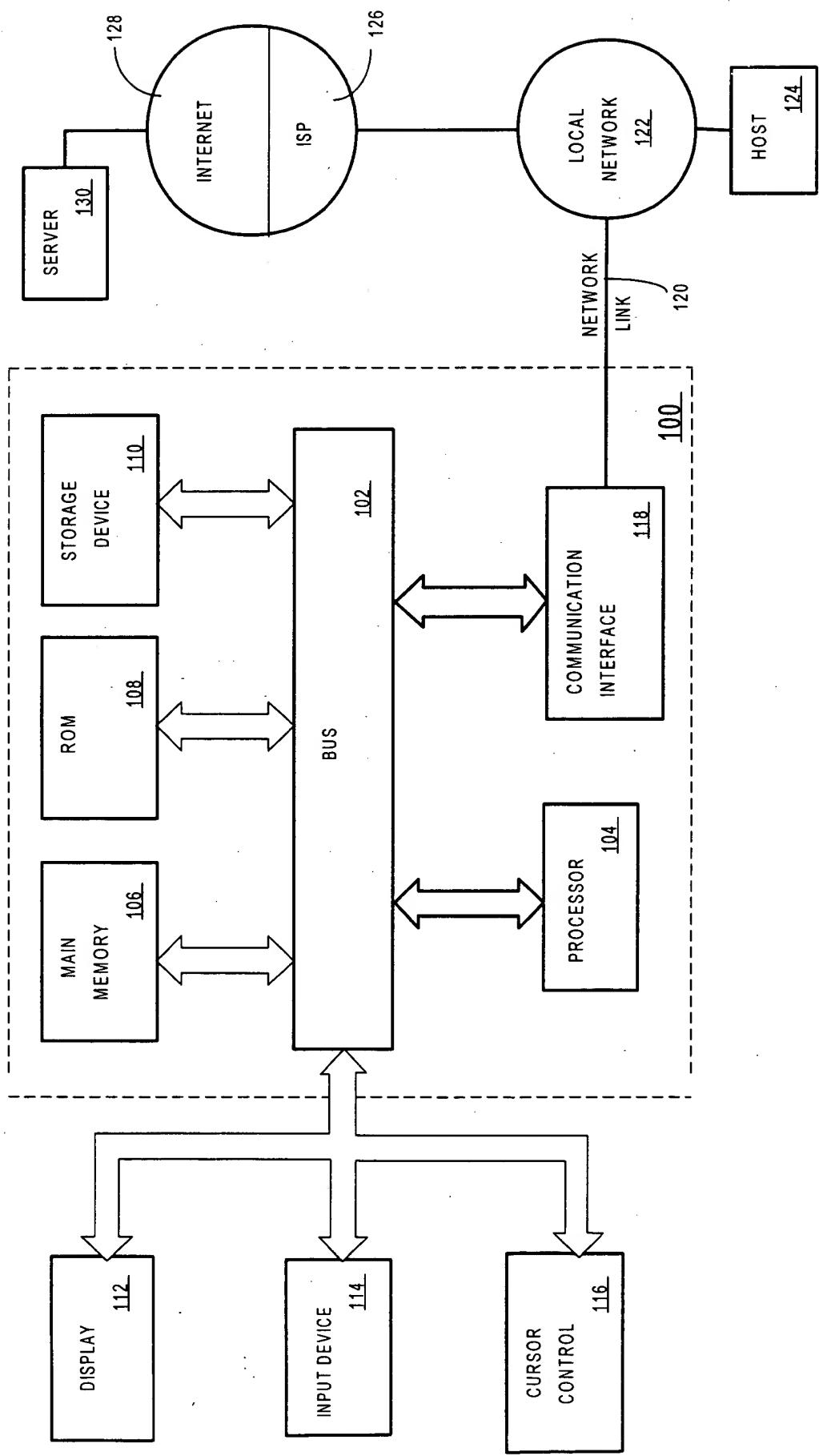


Figure 1



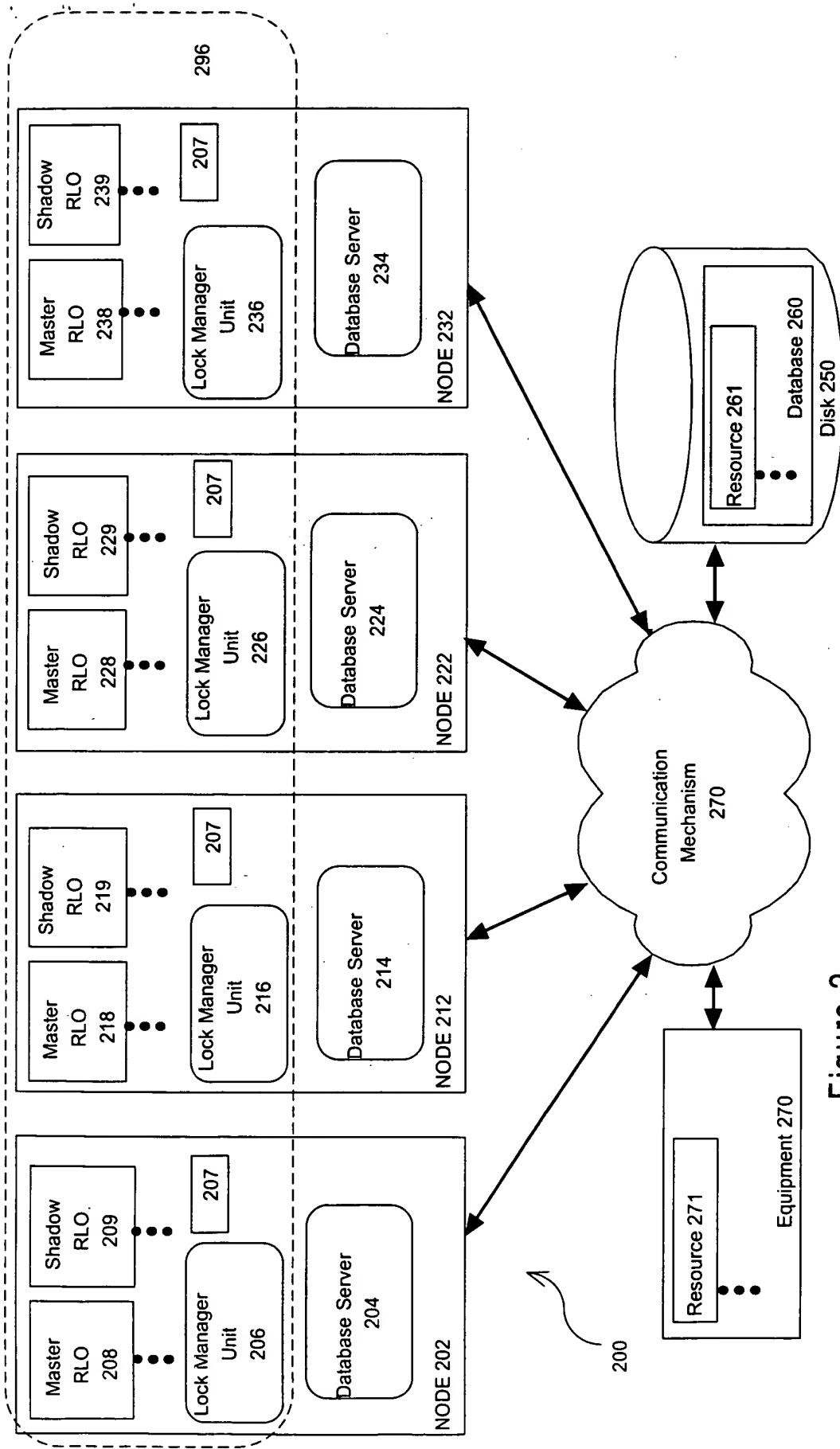


Figure 2

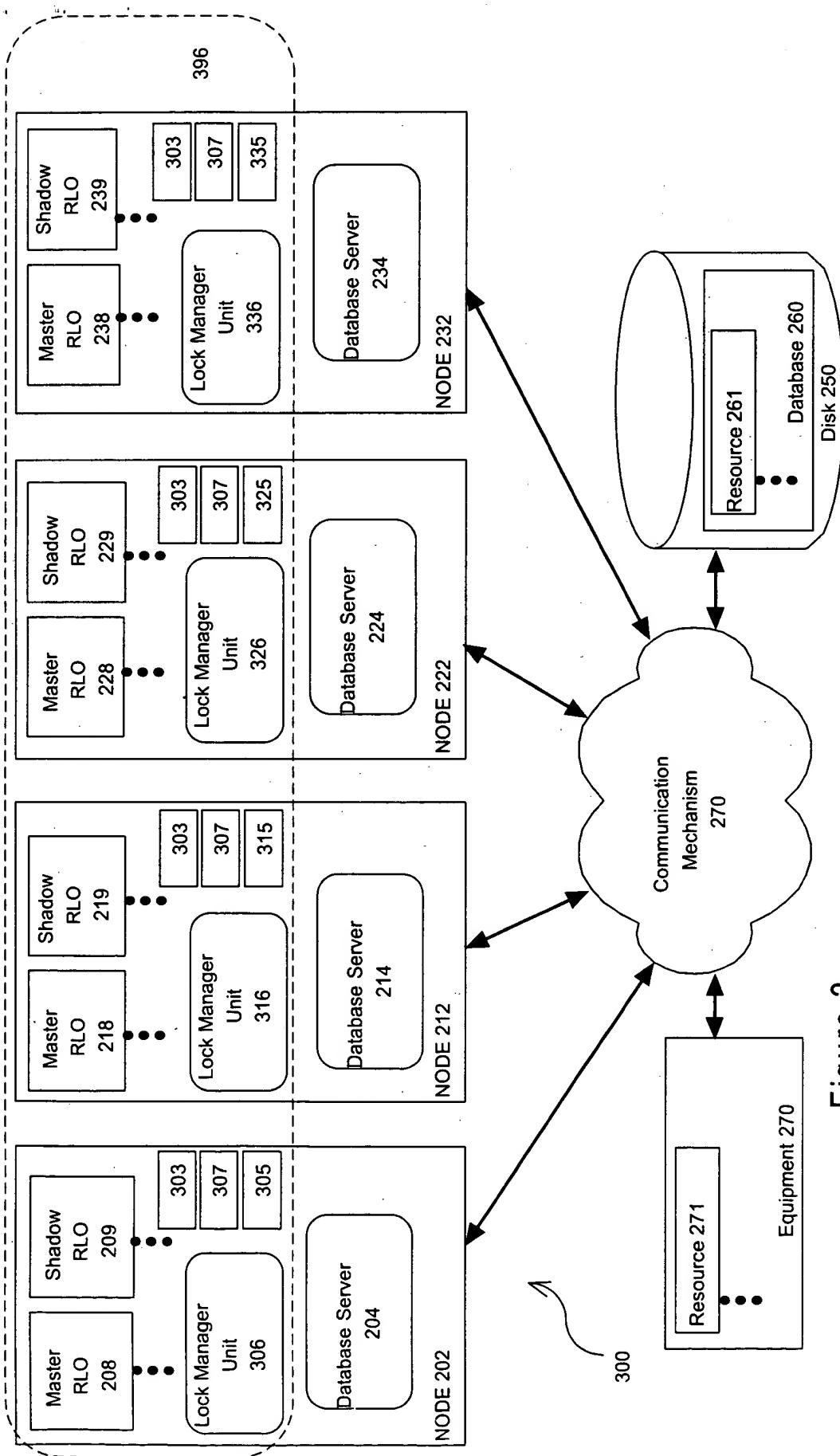


Figure 3

492	494
↓	↓
303	
Hash Value Range	Master Node
0-9	202
10-19	212
20-29	222
30-39	232
40-49	202
50-59	212
60-69	222
70-79	232
80-89	202
90-99	212
100-109	222
110-119	232
⋮	⋮

← 401
← 402
← 403
← 404
← 405
← 406
← 407
← 408
← 409
← 410
← 411
← 412

Figure 4A

Figure 4B

Hash Value Ranges	
Master Node	
202	0-9, 40-49, 80-89, ... ← 421
212	10-19, 50-59, 90-99, ... ← 422
222	20-29, 60-69, 100-109, ... ← 423
232	30-39, 70-79, 110-119, ... ← 424

303'

494'

492'

Ψ

Ψ

303'

307

592

594

↓

↓

Actual Node	Weight	
202	-1	501
212	0	502
222	2	503
232	1	504
Node E	4	505
Node F	1	506
Node G	0	507
Node H	-1	508
⋮	⋮	

Figure 5

Hash Value Range	Node 202	Node 212	Node 222	...
0-9	10	10	0	601
10-19	0	1	5	602
20-29	2	5	1	603
30-39	100	10	2	604
40-49	0	0	1	605
50-59	1	0	1	606
60-69	100	100	1	607
70-79	30	30	0	608
80-89	0	0	0	609
90-99	0	0	0	610
100-109	0	0	0	611
110-119	0	0	0	612
⋮	⋮	⋮	⋮	

Figure 6

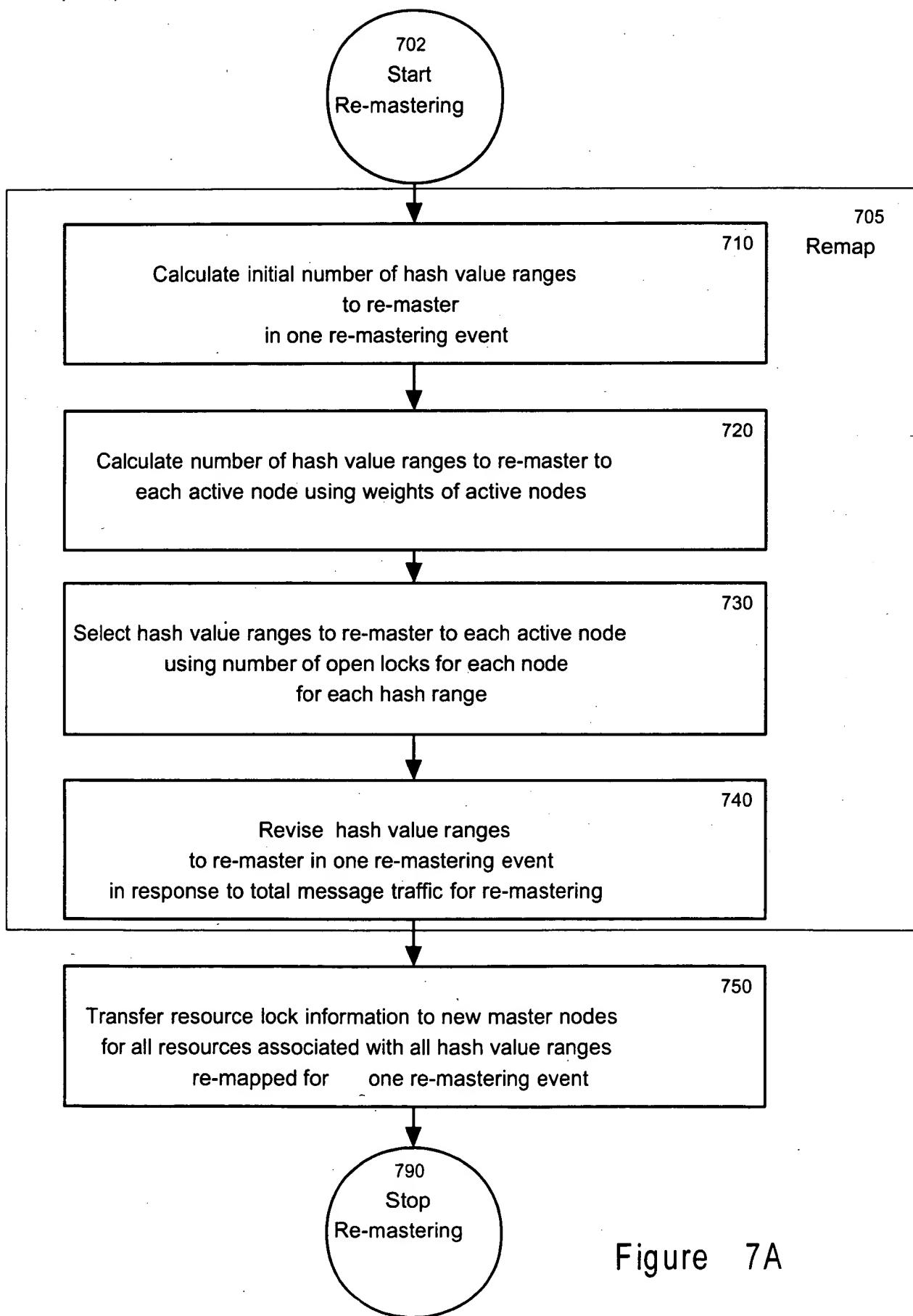


Figure 7A

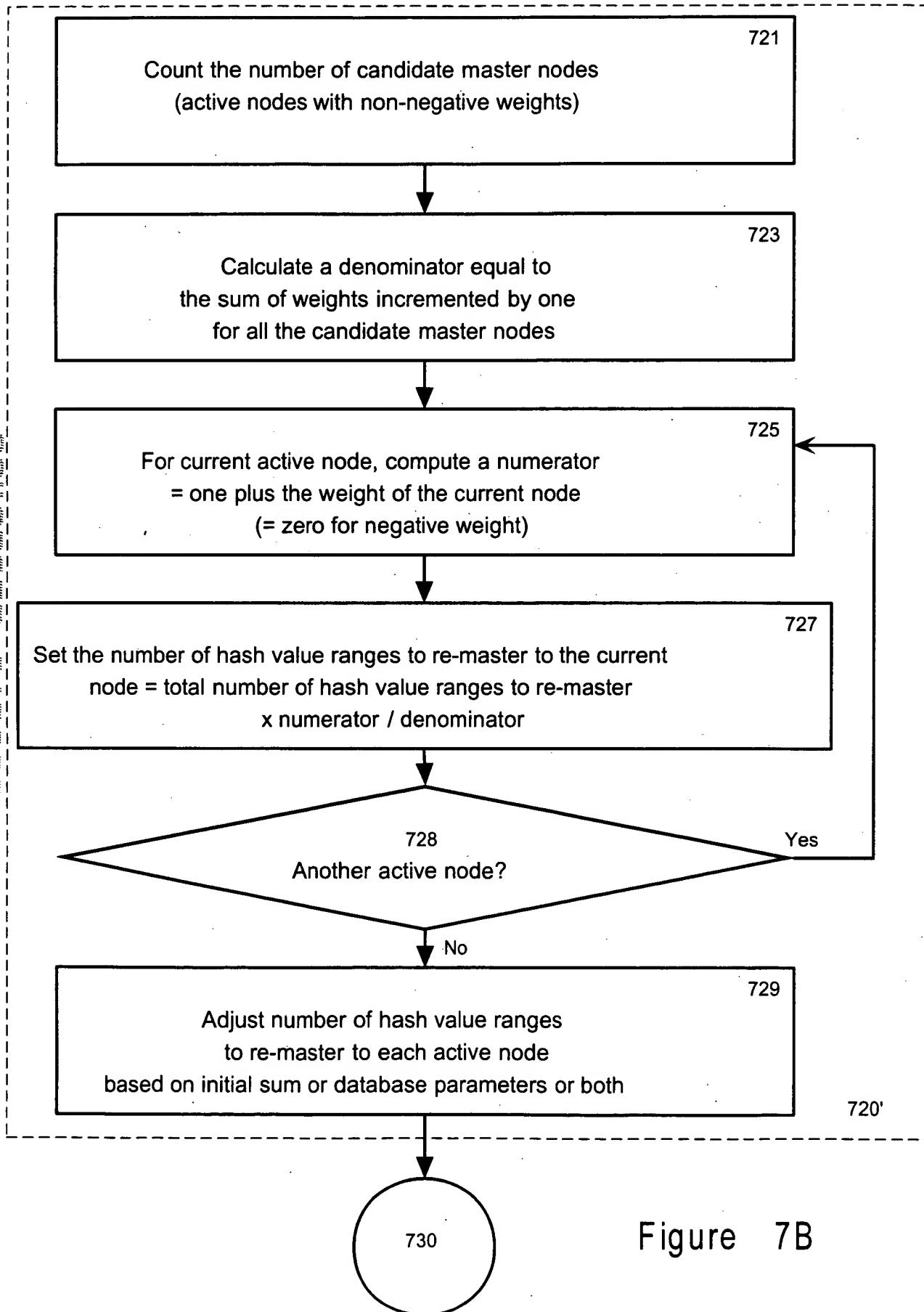


Figure 7B

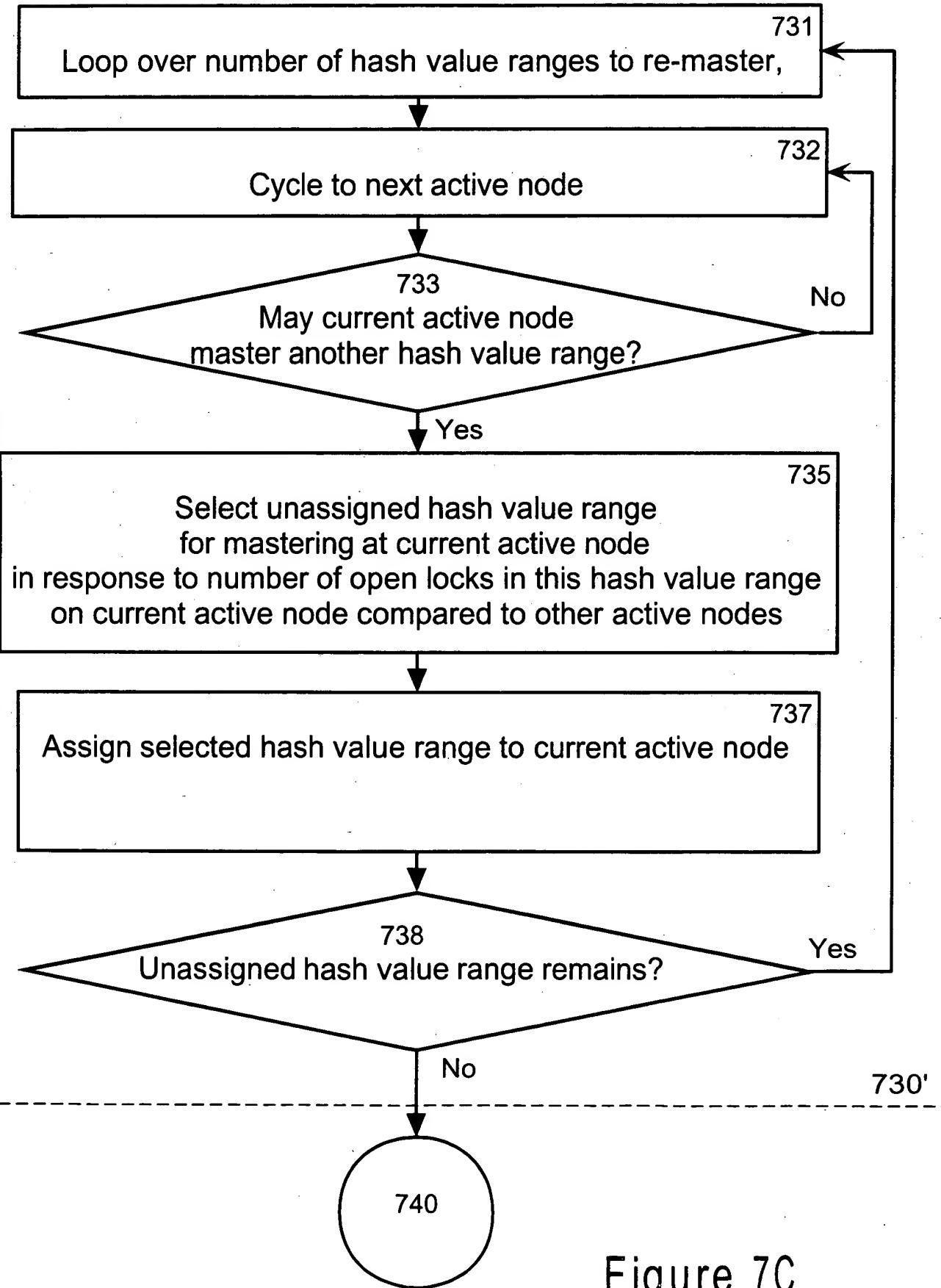


Figure 7C

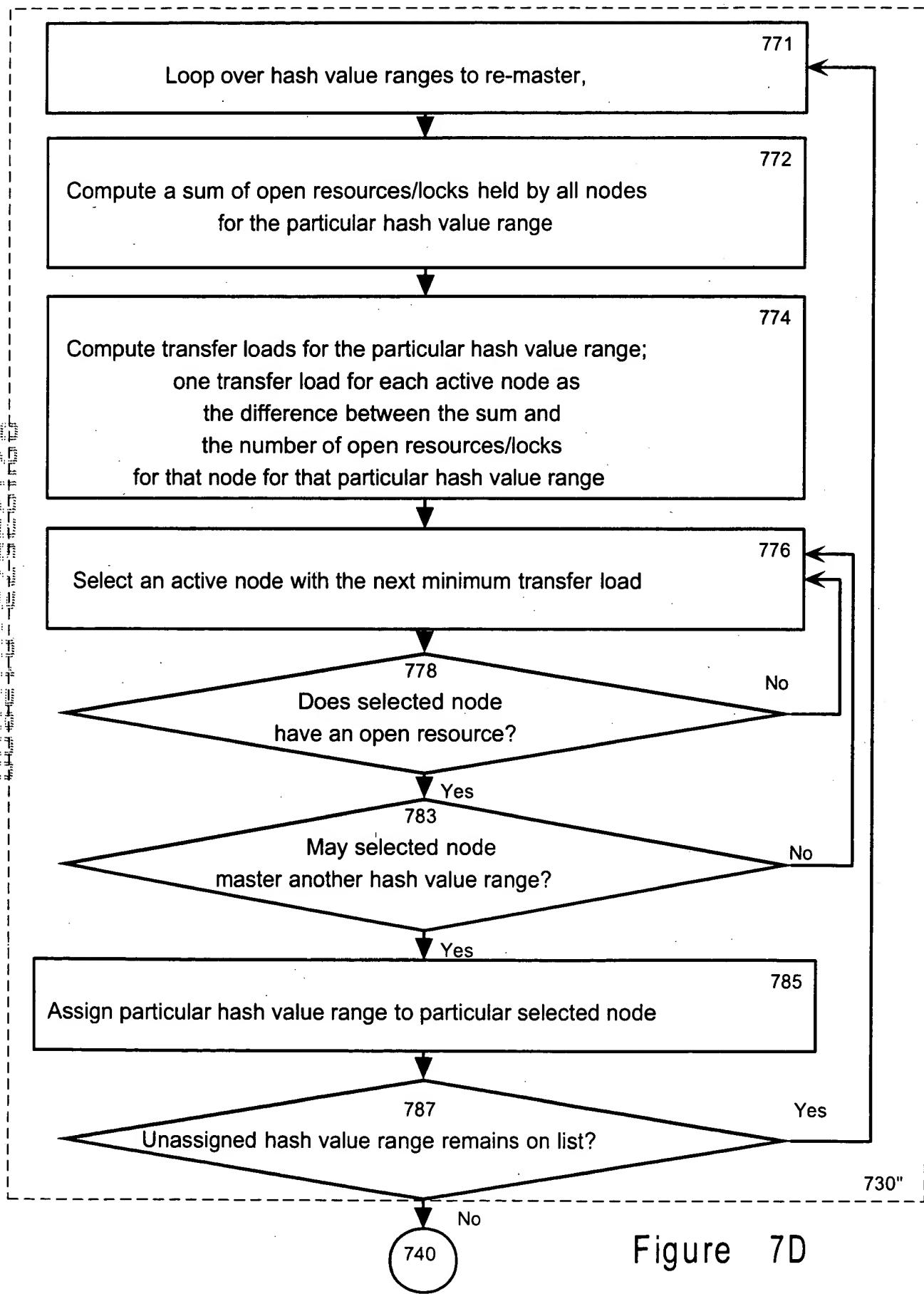


Figure 7D

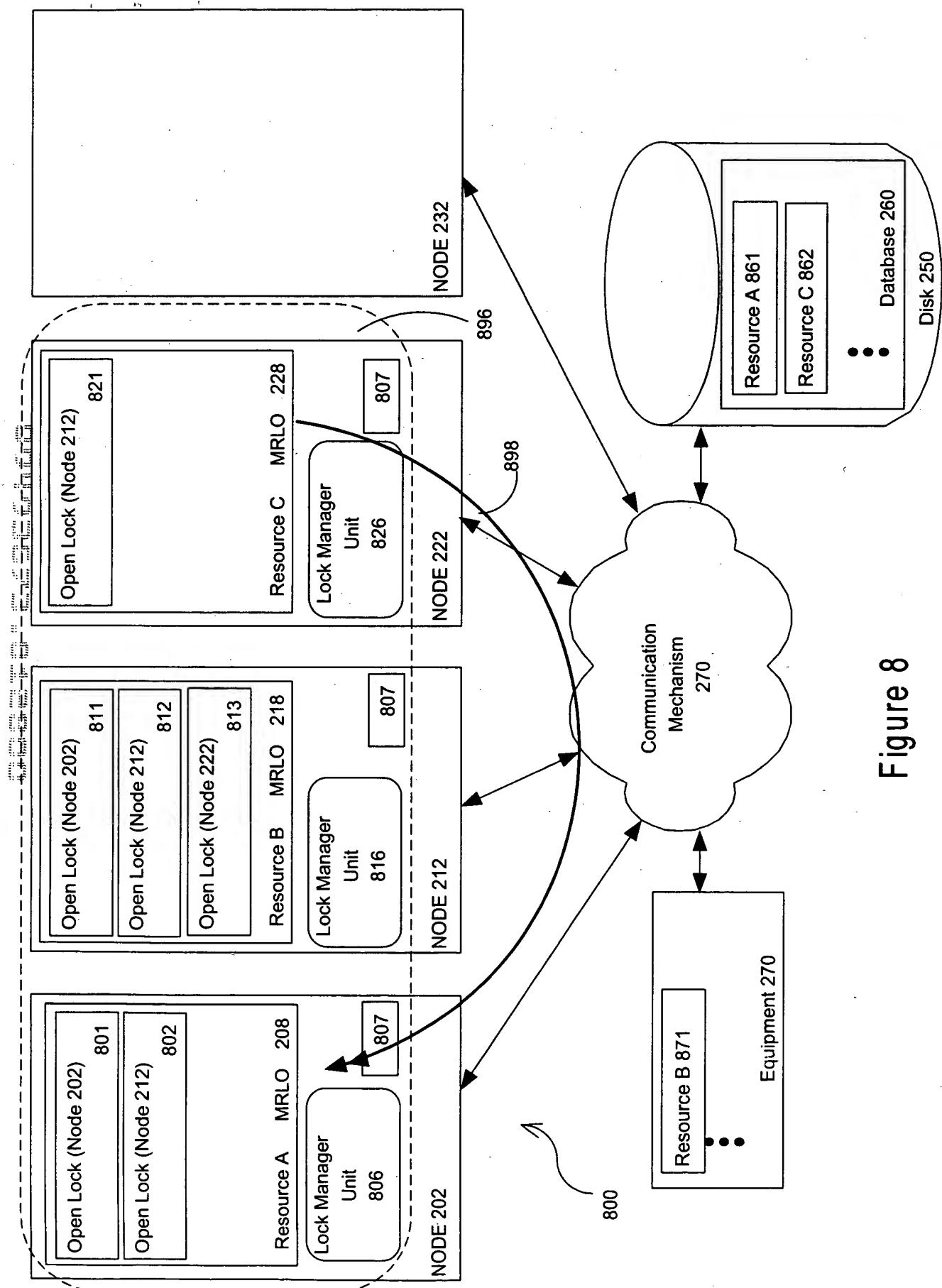


Figure 8

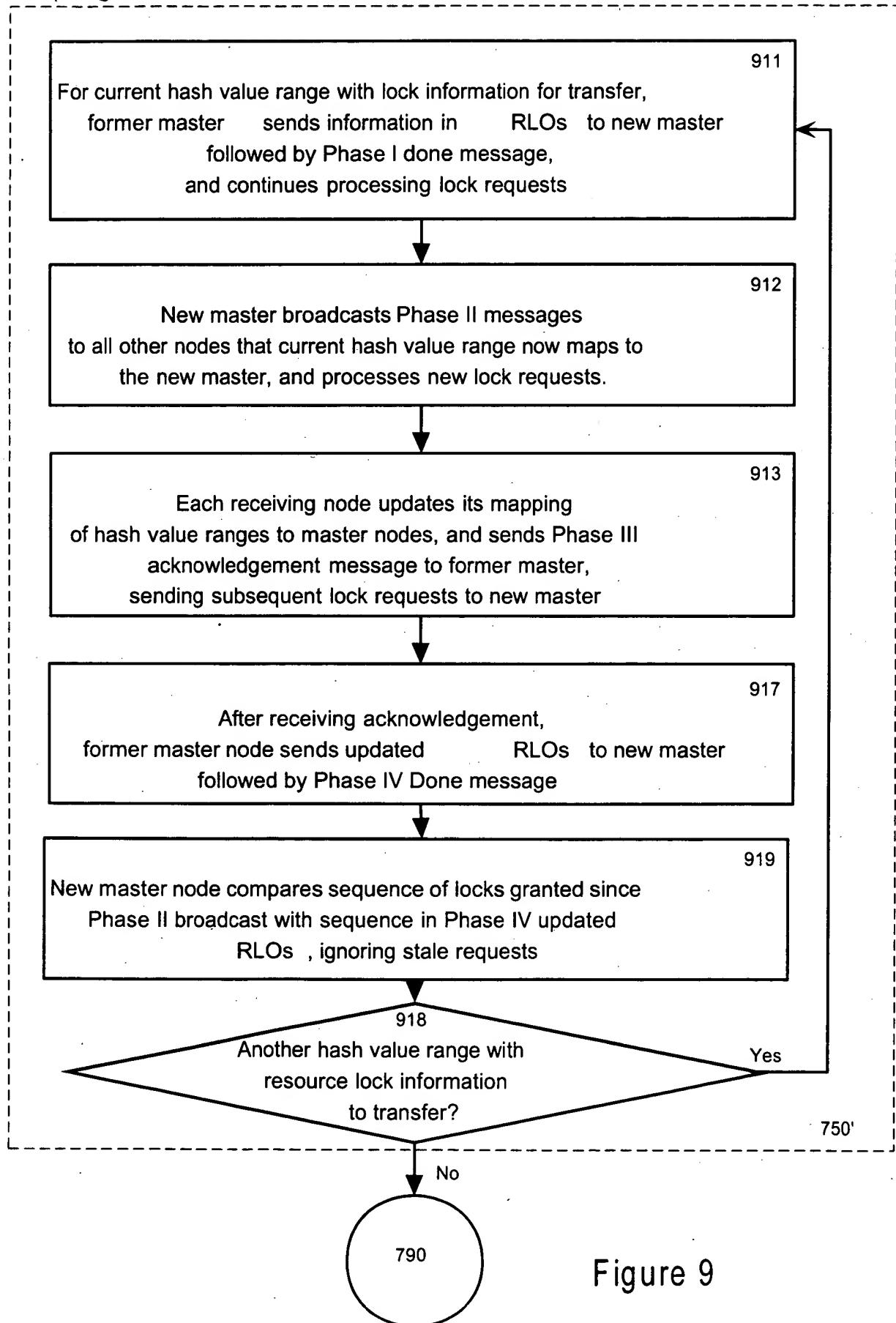


Figure 9

Figure 10A

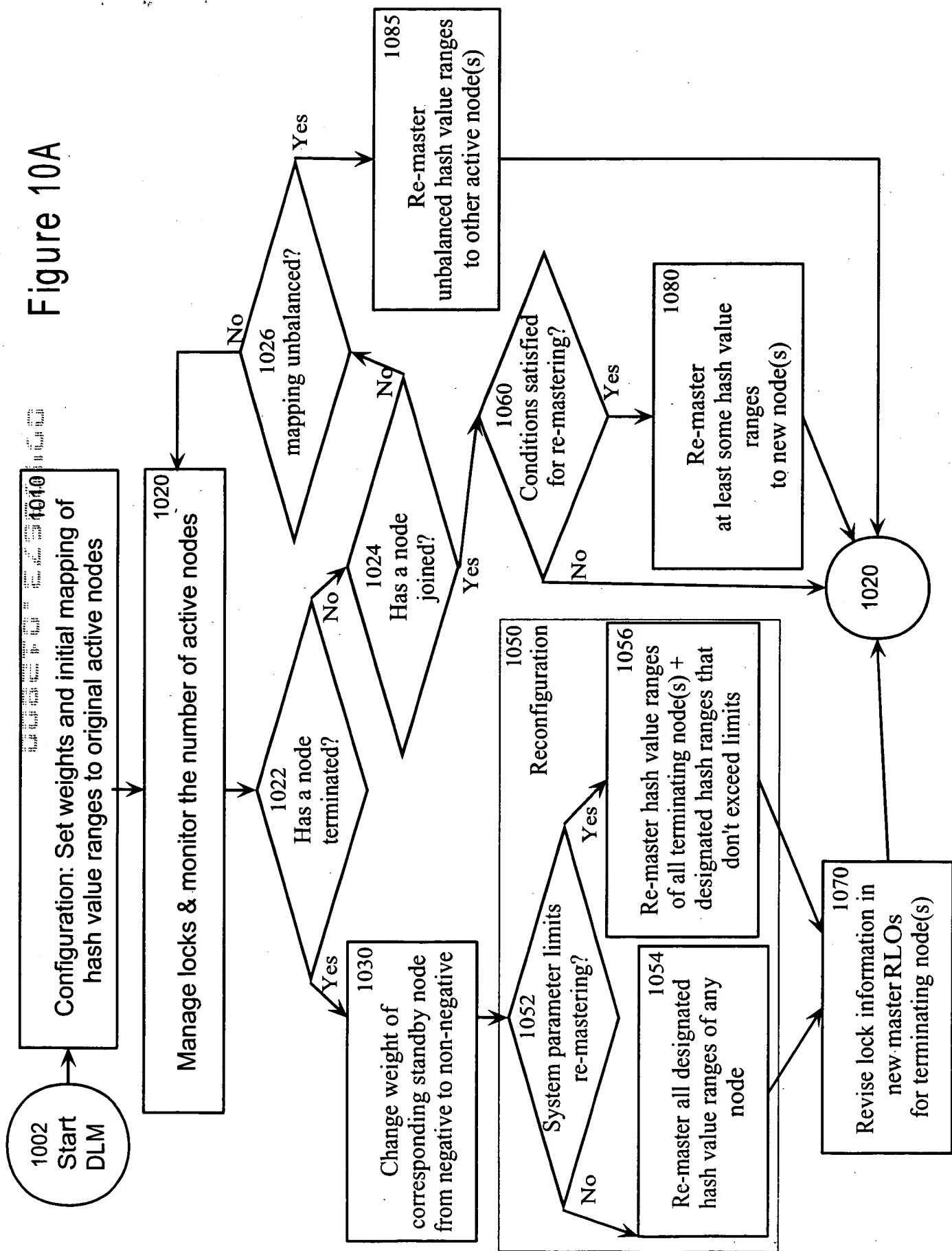
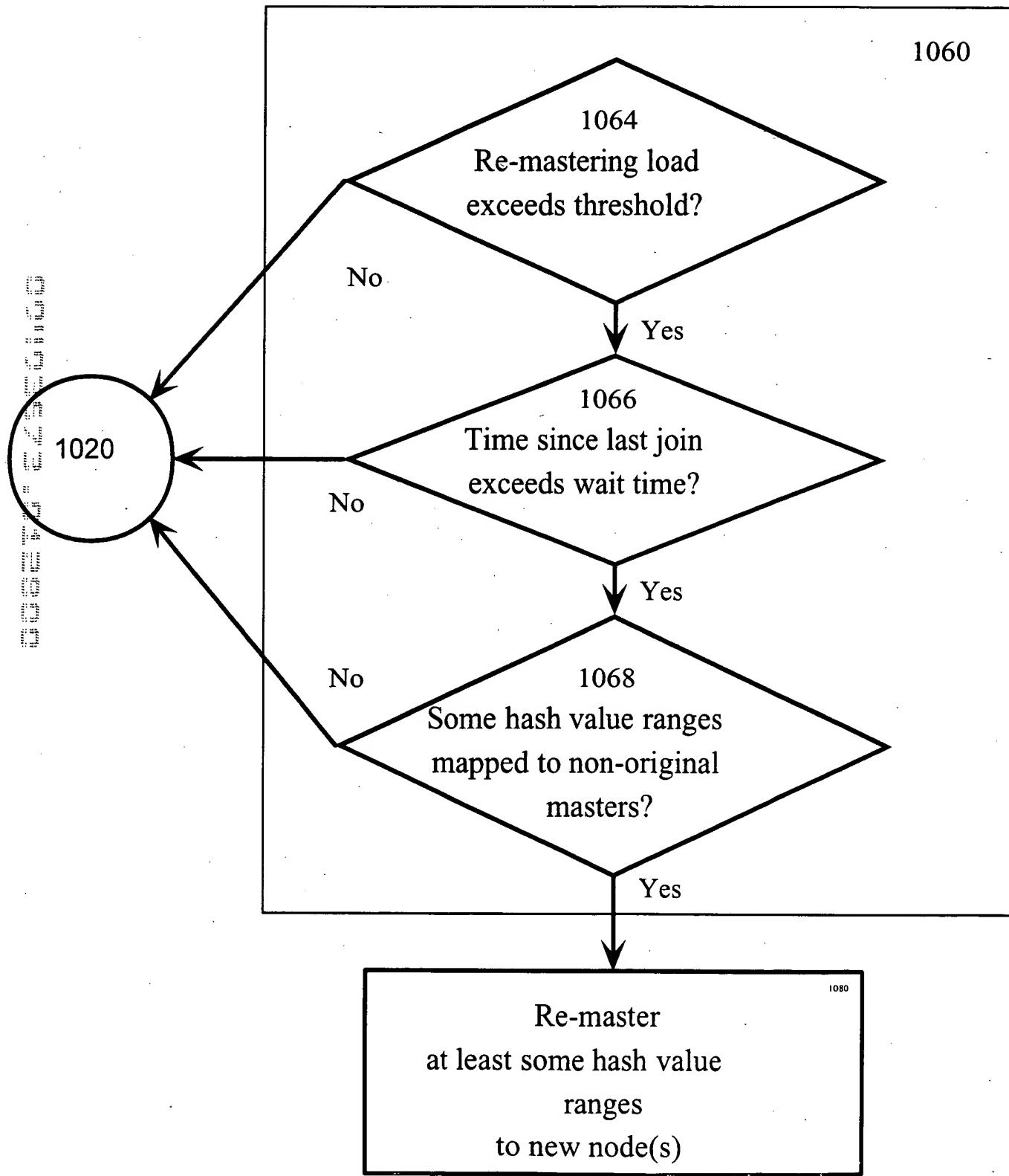


Figure 10B



1058
If master for current hash value range has
NOT terminated normally,

MRLOs or SRLOs associated with current hash value range
send information to new master, and manager
freezes processing lock requests only for resources of
current hash value range

750"

1072
New master marks RLOs with open locks involving terminated
master node dubious as required

1073
The system recovers dubious resources

1075
After dubious resources are recovered, freeze is lifted
and new master is ready to process lock requests

1070

Figure 10C